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DISTRICT OF COLUMBIA

**2006 NONPOINT SOURCE
POLLUTION PROGRAM**

ANNUAL REPORT

February 2007

District of Columbia
Department of the Environment
Watershed Protection Division



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I. Mission and Goals of the District of Columbia's Nonpoint Source Program

The District of Columbia's Nonpoint Source Program is an innovator in nonpoint source pollution prevention and control in the urban environment. Our Program protects District watersheds from nonpoint source pollution, safeguards city water and soil resources, and protects the health, welfare and safety of citizens using those resources. The Program works in partnership with other government agencies, environmental organizations, citizens and private industry to increase stakeholder awareness and involvement in the clean-up effort along the Anacostia River, Chesapeake Bay and other local waterways. Education and outreach efforts equip city residents with knowledge and tools to help them prevent nonpoint source pollution in their neighborhood streams.

The Nonpoint Source Program has established short-term milestones that mark progress toward long-term goals. Listed below, these goals aim to reduce nonpoint source pollution from urban runoff, construction, and hydrologic/habitat modification. A more thorough discussion of Program milestones and goals can be found in the *District Nonpoint Source Management Plan II* (2000).

- ▶ Support activities that reduce pollutant loads from urban runoff, construction activity, combined sewer overflows and trash disposal for the purpose of attaining present designated uses by 2015 and future designated uses by 2025.
- ▶ Support programs and activities that strive to restore and maintain healthy natural habitat, species diversity and necessary base flow to all of the Anacostia River tributaries by 2015 and to all surface waters of the District of Columbia by 2025 by restoring degraded watersheds and preserving healthy ones.
- ▶ Coordinate the District Nonpoint Source Program efforts with other District, federal, not-for-profit, environmental advocacy, private sector programs and adjoining jurisdictions to deliver the best possible nonpoint source pollution prevention and control services in the District of Columbia with the resources available.
- ▶ Carry out effective information and education campaigns on nonpoint source pollution prevention to targeted audiences who live, work, teach or visit in the District of Columbia and its watersheds, reaching at least ten-thousand (10,000) individuals each year.

II. Executive Summary

This annual report is written in response to *Sections 319 (h)(8) and (11) of the Clean Water Act (33 USC 1329)*, for the purpose of documenting progress made in Fiscal Year 2006 by the District of Columbia in implementing its *Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000).

As in previous years, the District of Columbia's Nonpoint Source Program has made significant progress toward achieving its goals. Accomplishments in fiscal 2006 include the following:

- ▶ Regulated construction activities throughout the District by reviewing two-thousand-four-hundred-eighty-eight (2,488) construction plans, conducting seven-thousand-three-hundred-sixty-seven (7,367) construction site inspections, inspecting two-hundred-twenty-one (221) storm water management facilities and conducting eighty-four (84) post-maintenance inspections. In combination with two-hundred-ninety-three (293) enforcement actions, this work insured compliance with the most current storm water, sedimentation and erosion control laws.
- ▶ Reduced storm water runoff and demonstrated Best Management Practices to the public by funding green roof installations at the American Society of Landscape Architects headquarters and the JBG Companies Office Building and implementing pervious parking and play area at Ross Elementary School and two large rain gardens at the Minnesota Avenue Metro Station.
- ▶ Expanded scientific reference data and worked to restore stream and habitat conditions by conducting fourth year of Anacostia River Fringe wetland monitoring and working with federal partners at Pope Branch and Watts Branch in the Anacostia watershed.
- ▶ Enhanced environmental education in the District by providing Meaningful Watershed Educational Experiences to approximately one-thousand-seventy-four (1,074) District school children, conducting an annual Schoolyard Greening Tour for teachers and residents, and hosting several environmental education training sessions for teachers, District of Columbia Environmental Education Consortium members and the Community.

US Environmental Protection Agency Chesapeake Bay Program watershed model results provide an estimate of potential impact from District nonpoint source pollution reduction efforts. In support of these efforts Watershed Protection Division submits to Chesapeake Bay Program all the nonpoint source Best Management Practices implemented in the District under our regulatory and non-regulatory programs. Chesapeake Bay Program model results (from 2005 progress scenario) indicate that, in an average hydrologic year, our current nonpoint source pollution control implementation level would significantly reduce nutrient and sediment pollution delivered to the Chesapeake Bay (Table 1).

Table 1: Nutrient and Sediment Reduction Estimates from Chesapeake Bay Program Modeling Efforts, 2005 Progress Scenario.

Total Nitrogen (lbs/yr)	Total Phosphorus (lbs/yr)	Sediment (tons/yr)
79,500	16,700	186

The highly urbanized setting and multiplicity of land ownership within Washington DC creates unique challenges for Nonpoint Source Program pollution reduction efforts. These circumstances can, however, also provide opportunities to form creative partnerships and test innovative technologies.

The Nonpoint Source Program continues to pursue development of monitoring and measurement techniques that will provide improved assessment of nonpoint source

pollution control technique effectiveness. In fiscal 2007 the District will continue to strengthen its existing programs for regulation and enforcement, stream and wetland restoration, education and outreach, and pollution prevention.

III. The District of Columbia's Nonpoint Source Program

In 1990, the government of the District of Columbia formed its Nonpoint Source Program to address the control and prevention of nonpoint source pollution impacting District surface and ground waters. In January 1998, the Nonpoint Source regulatory program was transferred to the District of Columbia Department of Health, under the Environmental Health Administration. As part of this programmatic realignment, the District of Columbia established the Watershed Protection Division in October 1998. Watershed Protection Division is now the division responsible for the Nonpoint Source Management Program. In November 2005 the District of Columbia City Council voted to create a new District Department of Environment (DDOE) within which the Watershed Protection Division now resides. DDOE is making plans to reorganize in the future and the Watershed Protection Division will be moved under a new Natural Resources Administration within DDOE.

DDOE assesses the health of all significant waterbodies in the District, and prioritizes water quality improvement efforts based on data gathered from water quality monitoring. DDOE, then, characterizes waterbody impairments and threats; these characterizations are included in the District of Columbia's Section 305(b) reports as required by the federal Clean Water Act. The 2006 305(b) report describes many of the District waterbodies as not supporting their swimmable (primary contact recreation) and fishable (fish consumption) uses.

Urban storm water runoff is a ubiquitous source of pollutants to District of Columbia waterbodies. Primary nonpoint source pollutants of concern include nutrients, sediment, toxicants, pathogens and hydrocarbons. The few waterbodies that partially or fully support a designated use are also threatened by nonpoint source pollutants. A process to rank watersheds for nonpoint source implementation in the District, conducted by the District Nonpoint Source Program in 1995, determined that the Anacostia River and its tributaries should receive highest priority, followed closely by Rock Creek and its tributaries. The outcome of this formal ranking process further galvanized DDOE's prior belief that the Anacostia River is the District's most daunting water quality problem. For more than ten years, the District of Columbia has been using a watershed approach to raise awareness and unite public and private sector resources to tackle the water quality problems of the Anacostia River.

To properly address the water quality problems associated with the District's urban environment, the District amended its approved Nonpoint Source Management Plan (1989) and created the *Nonpoint Source Management Plan II, Addressing Polluted Runoff in an Urban Environment*, (2000). This document outlines a comprehensive strategy for managing nonpoint source pollution in an urban environment in an effort to restore beneficial uses by the year 2025. The Plan sets goals and objectives of specific milestones that will be achieved.

The District employs both regulatory and non-regulatory approaches to reach its Nonpoint Source milestones. DDOE programs that fall under regulation and enforcement include the:

- ▶ Storm water Management Program
- ▶ Soil Erosion and Sediment Control Program
- ▶ Floodplain Management Program
- ▶ Compliance and Enforcement Program (for storm water control Best Management Practices)

The combined aim of these programs is to ensure that any development or construction activities occurring within the District properly control potential erosion or runoff from their site areas and properly adhere to all federal and city laws relating to floodplains and waterways. In addition these programs ensure that Best Management Practices are installed correctly and receive appropriate maintenance and upkeep.

Non-regulatory programs include:

- ▶ Wetland and river habitat creation and restoration programs
- ▶ Use of Low Impact Development innovative Best Management Practice technology
- ▶ Education and outreach programs
- ▶ Pollution prevention programs
- ▶ Use of sustainable practices

Through these non-regulatory programs, the District educates community members about nonpoint source pollution and how their actions contribute to it, with the ultimate goal of changing personal behavior for an effective long-term solution. Additionally, the District tests and develops innovative approaches to urban nonpoint source pollution reduction, increases acceptance and implementation of Low Impact Development, and provides support and financial incentives for citizens wishing to implement Low Impact Development and pollution prevention techniques.

The District also develops partnerships and collaborations to address the issue of nonpoint source pollution. In recent years, the District has worked regularly with federal agencies to ensure that nonpoint source pollution prevention is addressed on both city and federal lands.

Overall, the nonpoint source management strategy attempts to change the mindset and actions of individuals and communities, elected leaders and agency heads. The strategy concentrates activities on targeted tributaries, and strictly enforces regulations that protect the District's water quality and natural



resources. The District does not shoulder the entire load, but rather combines assistance from many stakeholders and partners, in an effort to deliver clean water and healthy watersheds to the citizens of the Capitol city and its visitors.

A. Sediment, Storm water, Floodplain Management, and Low Impact Development

Highlights

- ▶ Reviewed two-thousand-four-hundred-eighty-eight (2,488) construction plans for compliance with sediment and storm water pollution control
- ▶ Processed environmental impact screening forms for forty-five (45) projects
- ▶ Received thirty (30) applications for innovative storm water project support through the Low Impact Development design and construction program with US Department of Agriculture and Natural Resources Conservation Service
- ▶ Funded several new and innovative showcase Low Impact Development projects
- ▶ Initiated development of retrofit projects in the Anacostia watershed

Construction Plan Review

In fiscal 2006, to meet its objective of reducing the amount of untreated storm water from construction sites, Watershed Protection Division reviewed approximately two-thousand-four-hundred-eighty-eight (2,488) construction plans for compliance with sediment and storm water pollution control. This review process led to the approval of two-thousand-three-hundred-twenty (2,320) of these plans.

Watershed Protection Division processed approximately four-hundred-seventy-three (473) requests for flood zone determinations at various properties in the city. Flood zone information is critical in determining the availability of flood insurance and eligibility for Federal assistance in the event of natural disasters caused by floods. Additionally, Watershed Protection Division processed eighty-three (83) requests for information on soil characteristics and reviewed approximately eighty-four (84) geotechnical reports to assess the suitability of soils for various construction projects.

Environmental Impact Regulation

In fiscal 2006, Watershed Protection Division reviewed environmental impact screening forms for forty-five (45) projects.

Put a Low Impact Development on it!

The Watershed Protection Division Low Impact Development Grant program provides funding for innovative storm water control projects in the District via two distinct grant vehicles. The first program is a traditional yearly Request for



Proposals process in which non-profit entities can apply for specified Low Impact Development subsidy programs originating from US Environmental Protection Agency 319 (Federal Clean Water Act) grant funds for a prespecified amount of funding. These grant awards require the awardee to handle all aspects of the project in question, from permitting, to engineering and construction, etc. This type of grant mechanism typically attracts local environmental non-profits with full-time staff and a high level of sophistication in grant writing and grant management.

The second grant vehicle is an innovative and unprecedented partnership between the US Department of Agriculture Natural Resources Conservation Service and Watershed Protection Division. Under this arrangement, the District is using 319 federal grant funds to pay for design and/or construction services for Low Impact Development, rather than awarding grant funds directly. The procurement arm of the Natural Resources Conservation Service, which is robust and has already developed procurement protocols for these types of projects, is used to bid out projects for the design and/or construction of chosen projects. Under this grant process, both public and private entities have the chance to have Low Impact Development fully designed and built on redevelopments, new developments or simply as a retrofit. Watershed Protection Division has set aside \$800,000 for this grant process in Fiscal Year 2006 and 2007.

As mentioned above, this grant process does not require the property owner to accept funds from a government entity; which normally requires incorporated status and certain forms of insurance. Nor does the Natural Resource Conservation Service-Watershed Protection Division partnership require that the grantee contract design or build firms directly, nor does it require candidate awardees to write formal grant proposals. This in turn attracts many more candidates because full time dedication to project management and a familiarity with grant management and writing are not required. This process bypasses many of the requirements and technical expertise required under the traditional Request for Proposal process. As a result, the first year of this new process yielded over 30 applicants.

The property owner does need to agree to maintain the installed device, as per District regulations, in perpetuity, as well as locate pre-approved signage in a prominent location on the property which explains the nature of the innovative storm water control device, as well as its funding source(s). The grantee must also agree to a mutually agreed upon number of tours of the Best Management Practice to the public and additional education and outreach. Grantee proposals are judged upon numerous criteria, including their engagement of local stakeholders and formulation of an outreach and education campaign. The ultimate goal of this program is to demonstrate the feasibility of these innovative Best Management Practices.

A steering committee consisting of local environmental professionals and government employees met on several occasions to develop a set of ranking criteria for Low Impact Development in the District. Additionally, the committee met on three occasions to sort through the 30 applicants and chose final awardees for funding. The US Department of Agriculture will begin bidding out chosen projects totaling roughly \$800,000 in design and construction costs to pre-qualified design and construction firms in the early part of 2007.

Showcase Low Impact Development Projects Built To-Date

Ross Elementary School: In Fiscal 2006, Watershed Protection Division funded the implementation of two Best Management Practices. The first is a groundwater recharging subterranean Stormtech chamber, which was donated by the manufacturer, and accepts storm water from a 6000 square foot synthetic grass playfield and poured-in-place rubber play area surrounded by perimeter drains. The second Best Management Practice is a new pervious parking area which holds approximately twelve cars and has significant subterranean storage capacity via a stone sub-base. The school play area and parking lot previously drained into an undersized combined sewer system and contributed to regular flooding of the surrounding neighborhood.

Minnesota Avenue Metro Station: In fiscal 2006, two large rain gardens were retrofitted at the end of a large and heavily used twenty-thousand square-foot (20,000 sq-ft) Washington Metropolitan Area Transportation Authority parking lot, which is draining directly into the Anacostia. Not only do small storm events drain into the rain gardens, but larger events which bypass into the storm drains are also filtered through catch basin inserts with filtering media. This is a very aggressive series of storm water control measures for this heavily used public parking lot.

Chesapeake Bay Foundation (Chesapeake Bay Foundation) Green Roof Grant Program: The Chesapeake Bay Foundation green roof grants were made possible by a 2003 lawsuit settlement with the DC Water and Sewer Authority, which included giving Chesapeake Bay Foundation \$300,000 to generate green roof projects within the combined sewer area of the Anacostia River watershed. Chesapeake Bay Foundation's Anacostia River office set up a small grants program in which they requested commercial green roof proposals from private and public entities. This was supplemented by a \$60,000 award from Watershed Protection Division in 2005 which allowed a 20% subsidy for two additional green roof projects. The two projects are:

- **American Society of Landscape Architects** headquarters at I Street, NW, totaling 3,000 square feet.
- **The JBG Companies Office Building** at 51 Louisiana Ave. NW: A new building annex and renovation is planned with a 12,000-square-foot green roof. It is scheduled to be installed in late 2007 or early 2008.

Low Impact Development retrofits in targeted subwatersheds

In 2006, DDOE Watershed Protection Division continued to work with subgrantees and contractors to complete designs and seek all necessary permits for Low Impact Development retrofits in Pope Branch, Watts Branch, and Ft. Dupont subwatersheds. Obtaining buy-in from several District agencies has required numerous hours of meetings and site visits. When built, these projects will contain informational signs to educate the community about the benefits of these types of retrofits. The retrofit sites have been located in high visibility locations that also meet technical feasibility requirements. The sites are:

Ft. Dupont: The Ice Rink parking lot and the Ft. Dupont Activities Center parking lot are the two largest parking lots in the Ft. Dupont subwatershed. Both of these will be retrofitted with bioretention features. One half of Ridge Road will also be retrofitted with bioretention trenches to treat runoff from this road. When complete, these retrofits will treat approximately 3.95 acres of impervious surface.

Pope Branch: The retrofits in the Pope Branch subwatershed have been designed and will be constructed in 2007. There are two high visibility sites along Pope Branch Park treating runoff from M Place SE. Another site will be located at the DC Therapeutic Recreation Center. Approximately one acre of impervious surface will be treated through these retrofits.

Watts Branch: Washington Parks and People was the recipient of a subgrant to install four Low Impact Development retrofits in Watts Branch. Plans have been completed for these retrofits and will be integrated into the park redesign that is being undertaken by Walter Pierce Park and Anacostia Waterfront Corporation. These retrofits will treat over a half an acre of impervious surface and will be constructed in 2007.

DDOE Watershed Protection Division is currently examining the possibility of incorporating Low Impact Development on private property. In 2007, the Watershed Protection Division will begin developing a program entitled 'Green Yards, Clean Streams' that will encourage the installation of storm water reduction techniques on homeowner property. Potential barriers pertaining to permitting and fund allocation are being explored to help prevent project disruption.

B. Inspection and Enforcement

Highlights

- ▶ Improved compliance with District of Columbia soil erosion and sediment control and storm water management regulations
- ▶ Strengthened soil erosion and sediment control and storm water management regulations
- ▶ Improved guidance for the regulated community with the creation of the *Erosion & Sediment Control Handbook*
- ▶ Monitored storm water Best Management Practice effectiveness on filtration practices, completed analysis, and finalized a report of the results
- ▶ Established necessary agreements to update the *District of Columbia Soil Survey* which will provide needed information to urban planners, developers and engineers

Compliance

During fiscal 2006 Watershed Protection Division improved compliance with District of Columbia soil erosion and sediment control and storm water management regulations by conducting seven-thousand-three-hundred-sixty-seven (7,367) inspections at construction sites and issuing two-hundred-ninety-three (293) enforcement actions.

Watershed Protection Division minimized pollution in storm water runoff to the Anacostia and Potomac rivers and their tributaries by inspection of two-hundred-twenty-one (221) storm water management facilities and eighty-four (84) post-maintenance inspections to ensure proper maintenance of these facilities. Storm water management facilities were restored on an as needed basis and appropriate enforcement actions were taken to ensure compliance.

Watershed Protection Division has improved customer satisfaction by investigating and resolving one-hundred percent of ninety-four (94) citizen complaints relating to soil erosion control and drainage problems in a timely manner.

Regulatory Improvement

Watershed Protection Division finalized revisions to the soil erosion and sediment control and storm water management regulations to strengthen the existing regulations. Once this review is completed, the document will be submitted to the Office of the Attorney General for review and approval.

Regulatory Guidance

Watershed Protection Division has completed the first draft of the revised District's *Erosion & Sediment Control Handbook*. The handbook will provide compliance guidelines to the regulated community. Watershed Protection Division will proceed with the Handbook once the Storm water Management regulations are complete.

Sampling of storm water from storm water Best Management Practices using filter media in the Anacostia River and Oxon Run watersheds began in the summer of 2005 and was completed in late fall of 2005. The sampling was part of a study being conducted as a joint venture with the University of Maryland, Department of Civil and Environmental Engineering and Watershed Protection Division. Storm water was collected from four different Best Management Practices for six storm events. Analysis of the Best Management Practice media and the quality of the storm water samples collected has been completed and reported in *Investigation of Storm water Devices Using Filter*.



DDOE signed a Memorandum of Understanding with the US Department of Agriculture, Natural Resources Conservation Service and other parties for *The Maintenance of a Soil Survey for the District of Columbia*. A work plan has been developed and implementation of the project has begun. This project will provide soil data necessary for city planners, developers and engineers and to appraise and manage land, and to understand, protect and enhance the environment.

C. Habitat Creation and Restoration

Highlights

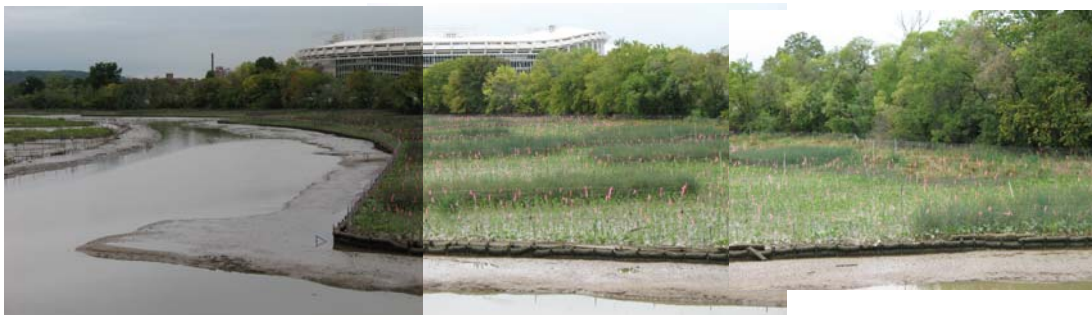
- ▶ Collected four years of monitoring data on Anacostia River Fringe wetland
- ▶ Created six-acre Heritage freshwater tidal wetland project in Kingman Lake and initiated monitoring with US Geological Survey
- ▶ Worked to move forward several long-awaited restoration projects on small tributaries to the Anacostia, including Hickey Run, Pope Branch and Watts Branch
- ▶ Completed the toxicity analysis for the Best Management Practice site at Hickey Run, a report on the Best Management Practice selection, and the preliminary designs for the Best Management Practice
- ▶ Selected a contractor to produce stream restoration designs for the Pope Branch project (along with Department of Parks and Recreation and DC Water and Sewer Authority), and continued with monthly community stakeholder meetings as well as scheduled trash clean ups
- ▶ Completed the 90% designs for Watts Branch with US Fish and Wildlife Service, and continued to work closely with other partners and associated projects

Heritage Wetlands



In 2006, DDOE and US Army Corps of Engineers constructed the new six-acre tidal wetland restoration project, the Heritage wetlands. The project includes several tidal guts which should provide deeper water habitat for fish as well as low tide passage for kayaks and canoes. The project is in Kingman Lake, adjacent to the RFK parking lot stadium, and was constructed to elevations ranging from 1.6 – 2.5 feet NGVD29. This elevation will sustain mid to high marsh which includes plant species

such as Button Bush (*Cephalanthus occidentalis*), Swamp rose (*Rosa palustris*), and Marsh mallow (*Hibiscus moscheutos*). DDOE and US Geological Survey began monitoring this new wetland and will continue to do so for the next 4 years.



Anacostia River Fringe Wetland Monitoring

Fiscal 2005 was the fourth year of Anacostia River Fringe wetland monitoring. DDOE & US Army Corps of Engineers, in fiscal 2003, completed construction of sixteen acres of river fringe wetland in the Anacostia and have monitored its change over time, along with partners at the US Geological Survey. Monitoring data, gathered at three seasonal sampling times, show that the wetlands now contain over forty species of plants and



provide overlapping areas of coverage that result in greater than one-hundred percent coverage in most of the forty-eight plots that make up the wetland.

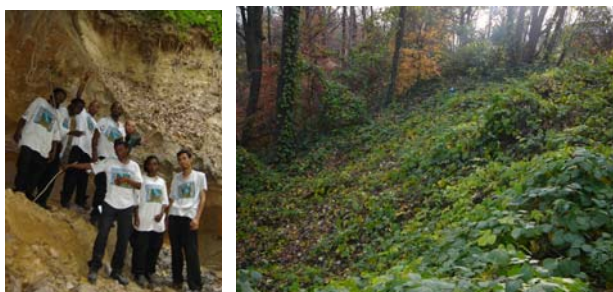
Annuals, including Wild Rice (*Zizania aquatica*), continue to thrive, although the presence of Purple Loosestrife is of concern. Fiscal 2007 will be the last year of river fringe monitoring and the data gathered over this five year project will be presented in a report.

Watershed, Stream and Habitat Restoration Design Work

The Watershed Protection Division works with federal partners on multiple watershed restoration projects. These projects are part of the District's objective of supporting modification and stabilization projects in eroding streams. The Watershed Protection Division plans to restore two streams (both tributaries to the Anacostia River), addressing watershed issues such as flashy storm water discharges, resultant stream entrenchment and bank erosion, fish blockages, habitat degradation, and negative human impacts such as dumping and property encroachment. The projects are Pope Branch and Watts Branch. Two other streams have been assessed and conceptual designs completed, however neither seem likely to go to construction for different reasons.

Pope Branch: In fiscal 2006, Watershed Protection Division worked closely with DC Water and Sewer Authority and Department of Parks and Recreation to finalize the

agreement and begin selection of contractors. Due to issues with the Office of Contracting and Procurement, this took longer than expected. Presently, all partners are working together with a design contractor. Throughout 2006, Watershed Protection Division held monthly meetings with stakeholders and community representatives, and helped organize community cleanups in Pope Branch. Also, Watershed Protection Division launched a blog (<http://popebranch.blogspot.com>) for the project that will provide up-to-date information on the project as it progresses. The community is excited about the project and monitors the progress achieved. Watershed Protection Division anticipates completing all designs and receiving permits in FY 2007 and beginning construction in FY 2008.



Watts Branch: In 2006, Watershed Protection Division worked to move through important design milestones. 30%, 65% and 90% designs were completed and shared with all stakeholders in 2006. Permitting for the project was initiated as well as floodplain impact analysis. Watershed Protection Division is poised to initiate construction on this important stream project in 2007. Natural Resources Conservation Service will act as the contracting agency for the project and Watershed Protection Division will provide project inspection. Additionally, outreach posters were completed in 2006 and will be displayed in 2007.

Hickey Run: Throughout fiscal 2006, Watershed Protection Division continued to advance its goal of bringing a large trash trap and oil separator to the Hickey Run outfall located on US National Arboretum property. In response to US National Arboretum's request, a toxicity analysis was completed in 2006, and preliminary designs for the Best Management Practice were completed. We expect the Best Management Practice to be constructed in 2007; however this is heavily dependent upon the project demands from US National Arboretum. In January 2004, after an extended period of negotiations, US National Arboretum agreed to allow the restoration of three Hickey Run tributaries, in conjunction with the installation of a trash trap and oil separator. This will be one of the biggest, if not the biggest, urban sewershed treated by structural Best Management Practices in the US. Watershed Protection Division hopes that a complete stream restoration of the main stem Hickey Run can follow. However, at present Watershed Protection Division has not been able to interest US National Arboretum in going forward with stream reconfiguration and restoration, despite assistance from many watershed partners.

Oxon Run: Due to the high projected cost of restoration of Oxon Run (\$8 million), this project has been shelved for the time being. Numerous technical challenges exist such as sewer infrastructure running parallel to the stream on both sides. Watershed

Protection Division will reevaluate the restoration opportunities and funding in the future after completion of Watts Branch and Pope Branch.

D. Environmental Education and Outreach

Highlights

- ▶ Provided Meaningful Watershed Educational Experiences to approximately one-thousand-seventy-four (1,074) District school children
- ▶ Showcased five DC Public Schools with a Schoolyard Greening Consortium tour
- ▶ Strengthened DC Environmental Education Consortium; accomplishing several activities and programs including the development of a website, DCNaturally.org
- ▶ The Meaningful Watershed Education Experience and high school environmental education standards were included in the DC Public Schools Science Standards
- ▶ Submitted a B-Wet application to National Oceanic and Atmospheric Administration with several DC Environmental Education Consortium partners and DC Public Schools to provide Meaningful Watershed Education Experiences to DC Public Schools fourth graders
- ▶ Received a National Oceanic and Atmospheric Administration B-Wet grant to continue the Greener Schools Cleaner Water Conservation Site Program
- ▶ New Summer Environmental Education Outreach Program through the DC Public Schools that provided watershed education to elementary school students

Greener Schools, Cleaner Water Program

The fiscal 2005 schoolyard sites, Bertie Backus, Cardozo, Roosevelt, John Burroughs, Draper Elementary and Seaton Elementary were completed in 2006. A Request for Proposals has been sent out seeking partners to implement 5 new projects. The following site improvements were accomplished:

- ▶ Seaton Elementary and Cardozo High School were placed on the 2006 Schoolyard Greening Tour
- ▶ Over 4,000 square feet of impervious asphalt was removed from Draper Elementary school grounds with 12 native trees, 6 benches, soil and turf added, along with the installation of a rain garden to treat run off from nearby parking lots and asphalt play areas
- ▶ At Roosevelt High School, two rain gardens were added to the habitat project area, one designed to capture overflow water from the



- pond, the other to capture water from the roof
- ▶ An urban wetland was planted with cardinal flower and soft rush and other native plants such as Black-Eye Susan's, various ferns, sneezeweed, etc. at Seaton Elementary to provide habitat for insects and birds
- ▶ At John Burroughs Elementary, several raised planting beds were created with perennials, herbs and some vegetables in a concrete court-yard, garden plots were planted outside the school to turn previously heavily compacted soil into productive loamy soils, and several trees were planted
- ▶ Improvements were made to the Cardozo gardens including a large compost bin to recycle garden waste, a dry creek bed to re-direct storm water runoff from a concrete terrace into the existing gardens, and a new path and entrance to provide better access to classes
- ▶ Classes and teachers were walked through a variety of environmental education activities in addition to the hands-on instruction that took place during habitat work days
- ▶ Teachers were kept apprised of training opportunities and resources via the listserv, and all teachers received copies of National Wildlife Federation magazines for use in the classroom to enrich the environmental-based learning and connections to their habitat projects

Schoolyard Greening Consortium

The Schoolyard Greening Consortium merged with the DC Environmental Education Consortium. They will continue to maintain their website and serve as a committee of DC Environmental Education Consortium. They completed the following projects:

- ▶ Held the annual schoolyard greening tour in early Fall 2006 attended by 15 people showcasing the following school projects:
 - Cardozo Senior High School:** Cardozo's Peace Garden was started in 2002 in response to the events of 9/11. Designed to be a place of tranquility and escape from the world, it is used by both history and science teachers.
 - Children's Studio School:** An asphalt courtyard was transformed into an organic container garden with seasonal vegetables to be used in the school's lunch program and more. This garden received the 2006 Mantis Award honoring youth and community gardens.
 - Leckie Elementary School:** In partnership with American Institute of Architects, students and teachers designed and built a memorial garden for those lost at the Pentagon on 9/11. The garden is used by the school's registered Junior Master Gardener group.
 - Seaton Elementary School:** In partnership with Watershed Protection Division, Project Learning Tree, and Environmental Concern, students enhanced their "Outdoor Lab" by installing a pond and wetland area and planting new trees.
 - Stanton Elementary School:** A reading garden, including a grassy area with trees and benches, is used by teachers and students for reading and journaling. Recently, a butterfly garden was developed on the opposite side of the school in a relatively secluded area, to encourage wildlife.

- ▶ Developed the “Schoolyard Greening Portfolio” – a list of all greening projects in DC schools
- ▶ Identified K-6 DC Public Schools Science Power Standards applicable to schoolyard greening
- ▶ Updated the “Schoolyard Greening Grants for Teachers” - a list of funding sources and other resources for schoolyard greening
- ▶ Conducted an 8 hour schoolyard greening workshop entitled “*The Importance of Plants*” for 32 teachers on May 4 and 6 at Bancroft Elementary School, covering topics such as Herbs, Composting, Composting Critters and Plant Structure, and distributing plants, curricula and activities to the teachers

District of Columbia Environmental Education Consortium

Watershed Protection Division continues providing the leadership to strengthen DC Environmental Education Consortium. The following activities and tasks were accomplished in 2006 to strengthen organizational networking, training and knowledge for DC environmental organizations:

- ▶ Developed a three year strategic plan
- ▶ Revised the DC Environmental Education Consortium by-laws and committee structure
- ▶ Developed the DC Environmental Education Consortium website, www.dcnaturally.org, offering the following venues: home page, calendar of events, news, job postings, members, links, etc.
- ▶ Received a \$10,000 grant from the National Oceanic and Atmospheric Administration B-Wet program to provide Meaningful Watershed Educational Experiences training for teachers
- ▶ Received \$2,000 from the Urban Ecology Collaborative Cities Grant to travel to the various UEC meetings and for the DC Environmental Education Consortium website
- ▶ Strengthened ties with DC Public Schools by developing relationships with Dr. Wilma Bonner, Director of Instruction and Curriculum, Dr. Michael Kaspar, Director of Science, Dave Anderson of DC Public Schools Facilities and the DC Public Schools Cable TW
- ▶ Attended DC Public Schools Science teachers’ meetings showing the Meaningful Watershed Education Experience videos and distributing watershed resources
- ▶ Submitted testimony to the DC Public Schools Board of Education on the Master Facilities Plan
- ▶ Merged the Schoolyard Greening Consortium with DC Environmental Education Consortium, which has a listserv of 77 members, and revised and changed their website to reflect the merge
- ▶ Printed and distributed 2,000 copies of the DC watershed map developed by AWS
- ▶ Participated in the development of two Meaningful Watershed Educational Experiences videos
- ▶ Teacher Training Workshops:

- *Watershed Wise D.C.: On the River, On the Bank* was a day-long professional development workshop exposing 24 educators to the Meaningful Watershed Educational Experience. Teachers participated in an on-the-water field experience on Living Classroom's boat where they engaged in hands-on learning that included fish trawling, boat navigating, and water quality testing. Teachers also learned about other DC Meaningful Watershed Education Experience opportunities, gardening skills, tree identification, invasive plant issues, and lessons on soils. A wealth of resources was distributed to participants.
- Participated in the DC Public Schools Teacher Staff Development Institutes and Training conducting meaningful watershed educational experiences on the following topics:

- Wetlands – Environmental Concern and National Park Service
- The Anacostia River – Earth Conservation Corps
- Presentations and Trainings for DC Environmental Education Consortium Members and the Community
- A day-long “Diversity Training” was conducted for 20 people on June 6. The workshop was interactive using role-playing, case studies and discussion about the needs of District citizens.
- A two hour “Standards Worksheets” workshop was attended by 20 people led by Standards Works on November 27. The workshop instructed environmental educators on how to compose a DC Public Schools Standards-Based Worksheet, used by DC Public Schools teachers in lesson planning.
- A two hour workshop to learn “How to Effectively Apply for B-Wet Funds” was presented by National Oceanic and Atmospheric Administration for 10 people on September 25.

Presentations were made on the following topics:

- State Education Grants- Ashak Goodall, Director
- DC Public Schools Professional Development - Dr. Michael Kaspar, Science Director
- B-Wet Grant – Shannon Sprague, Director National Oceanic and Atmospheric Administration B-Wet Grant

Meaningful Watershed Educational Experiences



Hard Bargain Farm: Watershed Protection Division sponsored seven Meaningful Watershed Education Experiences at Hard Bargain Farm in Accokeek, Maryland with a total of one-hundred and seventy-four (174) fifth-grade students attending the overnight experience.

National Oceanic and Atmospheric Administration Grant: Through funding awarded by National Oceanic and

Atmospheric Administration, Watershed Protection Division was able to sponsor over 900 Meaningful Watershed Education Experiences to District School children.

Fiscal 2007 Goals: A second Meaningful Watershed Education Experience teacher training workshop is planned for May or June 2007. The training will take place on the Chesapeake Bay and the topic will be Wetlands.

Additional funding will be sought to expand Meaningful Watershed Education Experiences for District students.

Environmental Events

- ▶ Coordinated its 10th anniversary celebration of the Anacostia River Environmental Fair in Anacostia Park with over 400 students in grades 4-8 from 11 District schools, and recognized five individuals and/or groups from 23 participating organizations for their commitment to the environment
- ▶ Participated in the Aquatic Gardens Lily Festival, Energy Earth Week, and Anacostia River Cleanups
- ▶ Conducted the Annual Summer Environmental Education Camp at Camp Riverview July 17 – 21, 2006, with eighty students and their counselors participating in the week-long environmental camp
- ▶ Conducted one Project Learning Tree and five Wet in the City workshops with 39 educators participating
- ▶ Provided 2 to 3 hours of watershed education for 9 schools and 347 students as a part of the Watershed Protection Division Summer Environmental Education Outreach Program
- ▶ Held annual National Oceanic and Atmospheric Administration Youth Summit on October 13, 2006 for 80 students at McKinley High School, at which students planted 20 trees, learned to make rain barrels, prepared a native garden bed and learned ways they could improve water quality

E. Pollution Prevention

Highlights

- ▶ The District Clean Marina Advisory Committee received an Outstanding National Clean Boating Achievement Award from Marine Environmental Education Foundation including a \$5,000 grant
- ▶ Established a Dockwalker training course of 34 boat owners, yacht club officers and marina staff
- ▶ Helped assemble 1,800 clean boating kits for distribution to boat owners
- ▶ Completed a Phase I soils assessment of DC park properties and selected sites for Phase II demonstration projects
- ▶ The DC Soil and Water Conservation District began crafting a new five-year plan
- ▶ Hosted volunteer efforts to install seven-hundred (700) storm drain markers throughout the city by approximately five-hundred volunteers

Clean Marina Program

The Clean Marinas program, a partnership among the Watershed Protection Division, the National Park Service/National Capital Region, and marinas in the District, is a voluntary program through which marina operations become more environmentally responsible and marina managers educate the boating public on environmentally responsible boating practices. The program encourages marina, boatyard, and boat club operators, as well as the boating public to take further steps to reduce pollution and protect and improve environmental quality. Because marinas abut and are actually in the District's waters, almost everything that takes place there has the potential to affect water quality. Actions by individual boaters, through maintenance, operation, and storage of recreational vessels, can affect air and water quality. Marinas have the potential to reduce pollution to the District's environment by adopting practices that reduce the amount of waste produced as well as the way waste is handled.

The Marine Environmental Education Foundation had its 2006 Clean Boating Celebration at James Creek Marina on June 17, 2006. Fifteen exhibitors, including eight commercial companies, provided clean boating information and sample product giveaways. It is estimated that around 300 boaters attended the event. At this celebration, the District Clean Marina Advisory Committee received an Outstanding National Clean Boating Achievement Award from Marine Environmental Education Foundation that included a \$5,000 grant for the committee to use to expand its clean boating program.



On the same day as the celebration, a Dockwalker training course was held. Thirty-four boat-owning volunteers, yacht club officers, and marina staff from nine marinas were trained by clean boating experts from the Tennessee Valley Authority and the State of Washington. Dockwalkers were instructed on key needs and methods for controlling boat pollution and public education techniques for use with other boaters. Approximately 1,800 clean boating kits, including information about clean boating practices, a floating key chain with the Clean Marina logo, a fuel collar, and a boat toilet bowl cleaner were assembled in advance of the event. Dockwalkers received bags for distribution to boat owners in their nine facilities. Extra kits remain for distribution into those marinas not yet represented by Dockwalkers and at other DC boating events and shows.

Soils Assessment of DC Parks

Walter Pierce Park was chosen by the DC Department of Parks & Recreation as the first demonstration site for Phase II of the Soil Assessment Project. In the second year, numerous efforts were made to gain input from core stakeholders and concerned citizens. A preliminary conceptual design was developed by Straughan Environmental Services, Inc. The design provided erosion control, water quality protection and stabilization of the

hillside with terracing that permitted limited community gardening to continue. Issues surrounding cultural resources were addressed through a number of investigations and meetings. Two formal community meetings were held to explain the project and hear concerns in November 2005 and March 2006. Overlaps of the Soil Erosion project and the proposed Dog Park project at Walter Pierce Park were addressed.

After assessing the various aspects to the design, DC Department of Parks and Recreation concluded that it was impractical to include terracing and limited gardening in the design. DC Department of Parks and Recreation revised the direction for the project. Revisions to the project included addressing the severe invasive weeds problem and establishing native conservation cover on the hillside. Straughan Environmental Services has provided first and second drafts of the final design for comments. DC Department of Parks and Recreation, DDOE, Natural Resources Conservation Service and the National Zoo are making comments. DC Department of Parks and Recreation and the National Zoo are coordinating efforts to eradicate the Kudzu problem along their adjoining property.

Soil and Water Conservation District

The DC Soil and Water Conservation District Citizen Advisory Committee now has a full complement of Ward representatives and conducted monthly meetings. They reviewed the former plan of action and accomplishments of the DC Soil and Water Conservation District and began crafting a new five-year plan.



Watershed Protection Division created a new tracking system for the Storm Water Drain Marker Program and determined that, out of the 23,917 storm drains installed in the city, approximately 700 of them are marked with a storm drain marker, or approximately 2.93% of storm drains are marked. Watershed Protection Division will use the new tracking system to improve drain marking efficiency, increase numbers of marked drains, and make the information available to other interested groups.

F. Future Challenges and Action

In fiscal 2006, the District of Columbia's Watershed Protection Division will continue to follow the directive of its Nonpoint Source Management Plan. Planned activities for Nonpoint Source programs include:

Storm water, Sediment, Floodplain Management and Low Impact Development

- ▶ Continue to review and approve construction plans for compliance with sediment and storm water pollution control regulations
- ▶ Begin bidding out chosen Low Impact Development projects to pre-qualified design and construction firms

- ▶ Pursue funding from the Chesapeake Bay Targeted Watershed Program to implement a comprehensive Low Impact Development, rainbarrel and storm water retrofit education program that will involve many District partners
- ▶ Finalize watershed Low Impact Development grant agreements in the Anacostia River subwatersheds of: Pope Branch, Watts Branch and Fort Dupont
- ▶ Update the District's Floodplain Management Regulations (DCMR 20, Chapter 31) pursuant to changes in the National Flood Insurance Program
- ▶ Expand the District's *Storm Water Management Guidebook* to reflect new developments in areas such as industrial and commercial pollution prevention planning, redevelopment project design flexibility, low impact design techniques, and non-structural Best Management Practices such as street sweeping, landscaping for storm water facilities, rooftop treatment, and proprietary storm water products

Inspection and Enforcement

- ▶ Improve compliance with District of Columbia soil erosion and sediment control and storm water management regulations through inspection and enforcement action
- ▶ Provide excellent customer service by investigating and resolving one-hundred percent of citizen complaints relating to soil erosion control and drainage problems in a timely manner
- ▶ Continue partnerships to conduct a performance monitoring study of filtration Best Management Practices for storm water treatment
- ▶ Continue, with USDA-Natural Resources Conservation Service, to implement *The Maintenance of a Soil Survey for the District of Columbia* to provide necessary soil data
- ▶ Submit revised soil erosion and sediment control, and storm water management regulations to the Office of the Attorney General for review and approval

Habitat Creation and Restoration

- ▶ Oversee construction of the Hickey Run Best Management Practice and pursue rehabilitation plans for Hickey Run
- ▶ Continue to seek cost share sources for Oxon Run stream restoration
- ▶ Complete, with DC Department of Parks and Recreation and DC Water and Sewer Authority, stream and watershed restoration designs for Pope Branch along with construction of 4 demonstration Low Impact Development retrofits in the watershed
- ▶ Begin construction of stream restoration of Watts Branch with partners US Fish and Wildlife Service and Natural Resources Conservation Service, and complete 4 Low Impact Development retrofits in the subwatershed
- ▶ Update watershed implementation plans for Rock Creek, Pope Branch, Ft. Dupont, Anacostia, Watts Branch and Hickey Run watersheds, and make plans available on new DDOE website
- ▶ Initiate a feasibility study for the daylighting of a portion of Broad Branch in the Rock Creek watershed
- ▶ Continue monitoring of Fringe and Heritage wetland restoration projects

- ▶ Investigate other stream restoration projects that might be feasible in Rock Creek and seek Nonpoint Source buy-in on these projects

Environmental Education and Outreach

- ▶ Improve pollution prevention outreach and education to the adult citizen community
- ▶ Develop a 'Green Yards, Clean Streams' program for DC homeowners that will address storm water quantity and quality through a series of Low Impact Developments on homeowner property
- ▶ Create five new schoolyard habitats
- ▶ Repeat our success with another schoolyard conservation tour
- ▶ Continue to build upon an education collaborative composed of not-for-profit environmental organizations, teachers and government agencies to coordinate environmental education activities in the city
- ▶ Seek, in partnership with DC Public Schools, another National Oceanic and Atmospheric Administration grant for the Meaningful Watershed Educational Experiences
- ▶ Expand funding sources for Meaningful Watershed Education Experiences
- ▶ Conduct a Meaningful Watershed Education Experience teacher training workshop on the Anacostia River
- ▶ Provide a Meaningful Watershed Education Experience at Hard Bargain Farm to DC Public Schools students
- ▶ Develop standards worksheets for environmental education programs and trainings

Pollution Prevention

- ▶ Work with certified Clean Marinas to further their pollution prevention records
- ▶ Improve and strengthen the 'Dockwalker' program in order to disseminate pollution prevention information to three-thousand (3,000) boaters in the District of Columbia
- ▶ Clarify and return final Walter Pierce Park Project design comments to Straughan Environmental Services before the end of January 2007
- ▶ Assist Straughan Environmental Services with acquiring all necessary government permits to proceed with final design plans
- ▶ Begin project construction in Spring 2007
- ▶ Implement an Integrated Pest Management Campaign targeting community gardeners in the District, including the distribution of 500 'Green Gardening Tool Kits', to reduce storm water pollution run-off

Summary

The highly urbanized setting and the multiplicity of land ownership within the city can present challenges to nonpoint source pollution reduction; however, the same challenges present opportunities to form creative partnerships and test innovative technologies. An ongoing goal of the Nonpoint Source Management Program is to continue development of monitoring and measurement techniques to further assess the effectiveness of nonpoint

source pollution control programs. Additionally, the District of Columbia's Watershed Protection Division is working to further integrate its regulatory and non-regulatory branches.

By strengthening its existing programs and continuing to seek innovative solutions for reducing nonpoint source pollution in an urban setting, the District of Columbia will move steadily toward reaching the goals outlined in its Nonpoint Source Management Plan.

Appendix A: Financial Information

<i>FY 2005 Grant</i>	<i>Source</i>	<i>Federal</i>	<i>Match</i>
Nonpoint Source Implementation	US Environmental Protection Agency	\$1,252,600	\$835,066
Chesapeake Bay Implementation	US Environmental Protection Agency	\$767,000	\$767,000
Pollution Prevention	US Environmental Protection Agency	\$30,000	\$30,000
Meaningful Bay Implementation *	National Oceanic and Atmospheric Administration	\$150,000	\$36,036

* Third year grant amendment

Appendix B: Agency Partners

District of Columbia - Lead Agency:
Department of the Environment, Watershed Protection Division

City Government:

Anacostia Waterfront Corporation
DC Department of Parks and Recreation (DPR)
DC Department of Public Works (DPW)
DC Department of Transportation (DDOT)
DC Office of Planning (OP)
DC Public Schools (DCPS)
DC Soil and Water Conservation District (DCSWCD)
DC Water and Sewer Authority (WASA)

Federal Government:

Architect of the Capitol
National Park Service (NPS)
US Army Corps of Engineers (USACE)
US Fish and Wildlife Service (USFWS)
US Department of Agriculture Natural Resources Conservation Service (USDA-NRCS)
US Environmental Protection Agency (EPA)
US Environmental Protection Agency, Chesapeake Bay Program (CBP)
US Geological Survey (USGS)
Various federal facilities

Local Groups:

Anacostia Watershed Society (AWS)
Casey Trees Endowment
DC Greenworks
Green Spaces for DC
Howard University
Interstate Commission on the Potomac River Basin (ICPRB)
Living Classrooms Foundation, Washington, DC

Marina Environmental Education Fund (MEEF)
Metropolitan Washington Council of Governments (MWCOC)
Shaw EcoVillage
Student Conservation Association (SCA)
Sustainable Community Initiatives (SCI)
Washington Parks & People